Amendments to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A chemical compound or composition comprising a peptide, ~~said peptide comprising a β-strand-forming section of peptide,~~ wherein:

(a) said peptide comprises a β-strand-forming section of peptide consisting of four to sixteen consecutive α-L-amino acid residues and encompassing at least 50% of said peptide, none of the α-L-amino acid residues within the β-strand-forming section of peptide being proline, except at very ends of the β-strand-forming section of peptide ~~comprises a peptide backbone and forms a β-strand having two edges , a first edge and a second edge, corresponding to opposite sides of said peptide backbone~~;

(b) each of the consecutive α-L-amino acid residues in the β-strand-forming section of the peptide has a side chain ~~said first edge associates with a target β-strand formed by a separate peptide-containing molecule~~;

(c) said β-strand-forming section of peptide forms a β-strand having a peptide backbone which takes on the form of an extended ribbon having two edges, a first edge which associates with a target β-strand formed by a separate peptide-containing molecule and a second edge, such that the NH and CO components of successive ~~comprises a sequence of at least four consecutive~~ α-L-amino acid residues lie along either the first edge or the second edge of the ribbon, the first edge and second edge corresponding to two opposite edges of the peptide planes of the peptide backbone; ~~, all of which have side chains able to form favorable non-covalent interactions with neighboring side chains of the target β-~~

~~strand, and at least one of which is Nα-substituted with an Nα-substituent , and~~

(d) at least one of the Nα-atoms within the peptide backbone of the β-strand is Nα-substituted with an Nα-substituent, such that one or more Nα-substituent lie along only the second edge and sterically hinder the association of the second edge with another β-strand; and ~~any successive Nα-substituted α-L-amino acid residues are separated by an odd number of consecutive Nα-unsubstituted α-L-amino acid residues, such that the Nα-substituent(s) lie along only said second edge.~~

(e) the first edge remains free of Nα-substituents, and is not prevented from associating with the target β-strand formed by a separate peptide-containing molecule.

2. (currently amended) The chemical compound or composition according to claim 1, wherein, when there are two or more successive Nα-substituted amino acid residues, no two successive Nα-substituted amino acid residues in the β-strand-forming section of peptide are separated by more than 3 consecutive Nα-unsubstituted amino acid residues.

3. (currently amended) The chemical compound or composition according to claim 1 wherein, when there are two or more successive Nα-substituted amino acid residues, successive Nα-substituted α-L-amino acid residues in the β-strand-forming section of peptide are separated from each other by single Nα-unsubstituted α-L-amino acid residues, such that the β-strand-forming section of peptide comprises an alternating sequence of Nα-substituted and Nα-unsubstituted α-L-amino-acid residues.

4. (previously presented) The chemical compound or composition according to claim 1 wherein the Nα-substituent of each Nα-substituted α-L-amino acid residue in the β-strand-forming section of peptide sterically allows or promotes the β-strand-forming section of peptide to form a β-strand, and sterically hinders the association of said second edge of that β-strand with any other β-strand.

5. (previously presented) The chemical compound or composition according to claim 4, wherein the Nα-substituent of each Nα-substituted α-L-amino acid residue in the β-strand-forming section of peptide sterically hinders the action of proteolytic enzymes on the β-strand-forming section of peptide.

6. (previously presented) The chemical compound or composition according to claim 4, wherein the Nα-substituent of each Nα-substituted α-L-amino acid residue in the β-strand-forming section of peptide is selected from the group consisting of:

a fluorine atom or an OH group;

a group that is connected to the Nα atom by an oxygen atom within said group;

a group that is connected to the Nα atom by a CH_2 subgroup within said group;

a methyl or ethyl group, or some other alkyl or aliphatic group;

a substituted or unsubstituted benzyl group, or some other arylmethyl group;

an acetylated or acylated 2-hydroxy-4-methoxybenzyl (AcHmb) group; and

an acylated or unacylated 2-hydroxybenzyl (AcHb/Hb) group.

7. (previously presented) The chemical compound or composition according to claim 1, wherein the side chain of each α-L-amino acid residue in the β-strand-forming section of peptide allows or promotes the β-strand forming section of peptide to form a β-strand.

8. (previously presented) The chemical compound or composition according to claim 7, wherein the side chain of one or more α-L-amino acid residues in the β-strand forming section of peptide is that of an amino-acid residue having a β-sheet propensity of greater than 1.00.

9. (previously presented) The chemical compound or composition according to claim 7, wherein the side chain of one or more α-L-amino

acid residues in the β-strand forming section of peptide is selected from the group consisting of:

an atom or group that allows or promotes the β-strand-forming section of peptide to associate as a β-strand with the target β-strand and thereby form a stable β-sheet complex; and

an atom or group that forms a hydrophobic or electrostatic interaction, hydrogen bond, or other favorable non-covalent interaction with the neighboring side chain of the target β-strand in a β-sheet complex comprising the target β-strand and the β-strand forming section of peptide.

10. (previously presented) The chemical compound or composition according to claim 7, wherein the side chain of one or more α-L-amino acid residues in the β-strand forming section of peptide is selected from the group consisting of:

a hydrophobic group, or a group that has a considerable hydrophobic portion;

a branched or unbranched alkyl or aliphatic group;

a group that is branched at its connecting β-carbon atom;

an aromatic group;

an acidic or basic group; and

an amide- or hydroxyl-containing group.

11. (previously presented) The chemical compound or composition according to claim 1, wherein the side chain of one or more α-L-amino acid residues in the β-strand-forming section of peptide hinders the stacking of β-sheets.

12. (previously presented) The chemical compound or composition according to claim 11, wherein the side chain of one or more α-L-amino acid residues in the β-strand-forming section of peptide extends beyond the neighboring side chains in the β-strand.

13. (previously presented) The chemical compound or composition according to claim 1, wherein the side chain of one or more α-L-amino

acid residues in the β-strand-forming section of peptide allows the compound or composition to be traced or detected.

14. (previously presented) The chemical compound or composition according to claim 13, wherein the side chain of one or more α-L-amino acid residues in the β-strand-forming section of peptide is selected from the group consisting of:

an atom or group that contains a radioactive or magnetically active nucleus;

that of phenylalanine or tyrosine with one or more radioactive or magnetically active iodine or other halogen atoms substituted onto the aromatic ring;

a fluorescent, colored, or other spectroscopically detectable group;

a group which contains an unpaired electron and thereby acts as a spin label;

a group which contains the 2,2,5,5-tetramethyl-1-pyrrolidinyloxy (PROXYL) group; and

a group which contains the 2,2,6,6-tetramethyl-1-piperidinyloxy (TEMPO) group.

15. (previously presented) The chemical compound or composition according to claim 1, wherein the side chain of one or more α-L-amino acid residues in the β-strand-forming section of peptide is selected from the group consisting of the side chain of:

any naturally occurring α-L-amino acid or synthetic derivative thereof; alanine; serine; cysteine; threonine; valine; leucine; isoleucine; methionine; phenylalanine; tyrosine; tryptophan; glutamine; asparagine; glutamate; aspartate; histidine; lysine; arginine; and *tert*-leucine or β-hydroxyvaline.

16. (previously presented) The chemical compound or composition according to claim 1 wherein the target β-strand is formed by the Alzheimer's Aβ peptide, and the β-strand-forming section of peptide binds specifically as a β-strand to part or all of the KLVFFAE sequence (SEQ ID NO:3) within the target β-strand in the parallel

orientation, thereby forming a parallel β-sheet complex wherein consecutive residues of the β-strand-forming section of peptide lie directly opposite consecutive residues of the KLVFFAE sequence in the same order.

17. (previously presented) The chemical compound or composition according to claim 1 wherein the target β-strand is formed by the Alzheimer's Aβ peptide, and the β-strand-forming section of peptide binds specifically as a β-strand to part or all of the KLVFFAE sequence (SEQ ID NO:3) within the target β-strand in the antiparallel orientation, thereby forming an antiparallel β-sheet complex wherein consecutive residues of the β-strand-forming section of peptide lie directly opposite consecutive residues of the KLVFFAE sequence in reverse order.

18. (previously presented) The chemical compound or composition as claimed in claim 17 wherein the β-strand-forming section of peptide comprises at least a four-residue segment of the amino acid sequence aa1-aa2-aa3-aa4-aa5-aa6-aa7, or a mimic thereof, where:

aa1 is α-L-lysine or α-L-arginine;

aa2 is α-L-leucine or α-L-lysine, or an Nα-substituted form thereof;

aa3 is α-L-valine or α-L-isoleucine;

aa4 is α-L-phenylalanine or α-L-tyrosine, or an Nα-substituted form thereof;

aa5 is α-L-phenylalanine or α-L-tyrosine;

aa6 is α-L-alanine, α-L-threonine, α-L-valine, α-L-isoleucine, α-L-leucine, α-L-methionine, α-L-lysine, or α-L-histidine, or an Nα-substituted form thereof;

aa7 is α-L-tryptophan or α-L-glutamate.

19. (previously presented) The chemical compound or composition according to claim 1 wherein the β-strand-forming section of peptide is preceded by, followed by, or otherwise attached to a distinct membrane-penetrating section of peptide which enables the β-strand-

forming section of peptide to cross cell membranes, the blood-brain barrier or any other biological barrier.

20. (previously presented) The chemical compound or composition according to claim 19 wherein the side chain of each residue in the membrane-penetrating section of peptide is selected from the group consisting of:

a basic or hydrophobic group; and a side chain of alanine, valine, leucine, isoleucine, methionine, phenylalanine, tyrosine, tryptophan, proline, histidine, lysine, and arginine.

21. (previously presented) The chemical compound or composition as claimed in claim 19 wherein the membrane-penetrating section of peptide is made resistant to enzyme-catalysed proteolysis by the incorporation of α-D-amino acid residues and/or Nα-substituted amino acid residues.

22. (previously presented) The chemical compound or composition according to claim 1 wherein the β-strand-forming section of peptide has a free or acylated N terminus and a free, amidated, or esterified C terminus, or forms part of a larger peptide which has a free or acylated N terminus and a free, amidated, or esterified C terminus.

23. (previously presented) The chemical compound or composition according to claim 1 wherein the β-strand-forming section of peptide is attached to another functional component.

24. (previously presented) The chemical compound or composition according to claim 23, wherein the functional component is selected from the group consisting of:

a component which strengthens the binding of the β-strand-forming section of peptide to the target β-strand;

a component which enhances specificity of association of the β-strand-forming section of peptide with the target β-strand;

a component which enables the β-strand-forming section of peptide to cross cell membranes, the blood-brain barrier or any other biological barrier;

a component which causes the compound/composition to target specific organs, cells, or molecules;

a component which allows the compound/composition to be traced or detected;

an atom or group that contains a radioactive or magnetically active nucleus;

a fluorescent, colored, or other spectroscopically detectable group;

a group which contains an unpaired electron and thereby acts as a spin label;

a group which contains the 2,2,5,5-tetramethyl-1-pyrrolidinyloxy (PROXYL) group or the 2,2,6,6-tetramethyl-1-piperidinyloxy (TEMPO) group;

a solid matrix, resin, or support;

an enzyme, hormone, antibody, transcription factor, or other protein molecule;

a group that binds specifically to a particular protein; and

a cytotoxic molecule.

25. (previously presented) The chemical compound or composition according to claim 23, wherein attachment of the β-strand-forming section of peptide to the functional component is by means of: an amide or ester linkage formed with the C-terminus of the β-strand-forming section of peptide; or an amide linkage formed with the N-terminus of the β-strand-forming section of peptide; or an amide linkage formed with a carboxyl or amino group of a side chain within the β-strand-forming section of the peptide; or an ester linkage formed with a carboxyl or hydroxyl group of a side chain within the β-strand-forming section of peptide; or a disulphide bridge formed with a thiol group of a side chain within the β-strand-forming section of the peptide.

26. (previously presented) The chemical compound or composition according to claim 1 wherein the β-strand-forming section of peptide associates with a target β-strand comprising the amino-acid sequence KLVFF (SEQ ID NO:1).

27. (previously presented) The chemical compound or composition according to claim 1 comprising one or more components which mimic the structure and action of said β-strand-forming section of peptide, wherein the components are formed by replacing one or more of the backbone peptide groups or side-chain groups of the β-strand-forming section of peptide by another chemical group of similar stereochemistry and ability to form favorable non-covalent interactions with the target β-strand.

28. (previously presented) The chemical compound or composition according to claim 27 wherein:

(a) one or more of the N-unsubstituted backbone peptide groups (CONH) of the β-strand-forming section of peptide is/are each replaced by any of the following groups: CSNH (thioamide); COO (ester); CSO or COS (thioester); CSS (dithioester); $COCH_2$ (ketone); $CSCH_2$ (thioketone); SO_2NH (sulphonamide); $SOCH_2$ (sulphoxide); SO_2CH_2 (sulphone); SO_2O (sulphonate); and/or

(b) one or more N-substituted backbone peptide groups (CON(R))of the β-strand-forming section of peptide is/are replaced by one of the following N- or C-substituted groups: CSN(R) (thioamide); COCH(R) (ketone); CSCH(R) (thioketone); $SO_2N(R)$ (sulphonamide); SOCH(R) (sulphoxide); $SO_2CH(R)$ (sulphone), wherein R is equivalent to the original Nα substituent; and/or

(c) one or more of the side chains of the β-strand-forming section of peptide is/are each replaced by another group having similar stereochemistry or arrangement of polar and non-polar atoms, maintaining those particular features which are essential for association with the target β-strand.

29 - 42 (cancelled)

43. (previously presented) A pharmaceutical compound or composition according to claim 1.

44 - 45 (cancelled)

46. (new) The chemical compound or composition according to claim 1, wherein any two successive Nα-substituted α-L-amino acid residues are separated by an odd number of consecutive Nα-unsubstituted α-L-amino acid residues.

47. (new) A chemical compound or composition comprising a peptide, wherein:

(a) said peptide comprises a β-strand-forming section of peptide consisting of four to sixteen consecutive α-L-amino acid residues and encompassing at least 50% of said peptide, none of the α-L-amino acid residues within the β-strand-forming section of peptide being proline;

(b) each of the consecutive α-L-amino acid residues in the β-strand-forming section of the peptide has a side chain;

(c) said β-strand-forming section of peptide forms a β-strand having a peptide backbone which takes on the form of an extended ribbon having two edges, a first edge which associates with a target β-strand formed by a separate peptide-containing molecule and a second edge, such that the NH and CO components of successive α-L-amino acid residues lie along either the first edge or the second edge of the ribbon, the first edge and second edge corresponding to two opposite edges of the peptide planes of the peptide backbone;

(d) at least one of the Nα-atoms within the peptide backbone of the β-strand is Nα-substituted with an Nα-substituent, such that one or more Nα-substituent lie along only the second edge and sterically hinder the association of the second edge with another β-strand; and

(e) the first edge remains free of Nα-substituents, and is not prevented from associating with the target β-strand formed by a separate peptide-containing molecule.